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“ Long. of Asc. Node, $129^{\circ} 18'$.

Inclination, $1^{\circ} 42' 26''$.

Radius Vector, 30.000.

Daily motion, $21''.709$.

Long. at the Opposition, $326^{\circ} 44' 31''$. Mean Eq., Jan. 1st, 1846.

Gr. M. S. T. of Opposition, Aug. 19th, 706 – 1847.

“ Supposing the orbit nearly circular, the time of revolution would be about 164 years.”

Dr. Hale read a memorandum on the meteorology of the past season, and especially of the present month, as compared with former years.

John Bacon, Jr., M. D., was elected a Fellow of the Academy.

Two hundred and ninety-first Meeting.

February 2, 1847. — MONTHLY MEETING.

The PRESIDENT in the chair.

Mr. S. P. Andrews exhibited several large charts or diagrams of Chinese syllabic words, and others of Chinese written characters, which he explained. He regretted the absence of several Fellows of the Academy who had expressed an interest in his investigations, and especially of Professor Agassiz, who at a previous meeting wished to know in what the views put forth by Mr. A. differed from those of the distinguished French sinologue, M. Callery, author of *Systema Phoneticum Scripturæ Sinicæ*. Mr. Andrews said, that he ventured to dissent entirely from the main feature of M. Callery's system in the theoretical point of view.

“ The Chinese language consists of no more than 450 words, all of which are regarded as monosyllables, though a few of them are not strictly so. These we may designate, for convenience of reference, *syllabic words*. By the use of different tones in the utterance of these words, a greater circle of effective and distinct words is gained, amounting by the estimate of Abel Rémusat to 1203; the syllable, as to its vocal and consonantal elements, remaining the same.

Words thus distinguished from the same syllables uttered by a different inflexion of the voice we may designate as *tone-words*. But the varying ideas which the Chinese people have occasion to communicate are as numerous as those of other people in the same stage of advancement. Their spoken language is subjected to considerable ambiguities by its meagreness. This deficiency is, however, remedied in a very great degree in the written system; for while the number of spoken words is so very small, there are not less than 30,000 written characters or words, which express shades of thought with about the same minuteness of distinction as the vocabularies of Western languages. Each of these written words, which we may call *sign-words*, has then from one to perhaps twenty distinguishable meanings, like the words of the Latin or English.

“It is obvious from this statement, that for each *syllabic word* of the Chinese language, there is an average of sixty or seventy written or *sign-words*. Otherwise stated, the reader of Chinese meets with this large number of written words having different significations, which he pronounces precisely alike, in the same manner as we pronounce *wright*, *right*, *rile*, and *write* alike, though written differently and signifying differently. Hence these sign-words are called *homophones*. To some extent, there is a similarity in form between the *sign-words* which thus correspond to a single *syllabic word*, while beyond a certain limit they are entirely diverse. The *sign-words* of the Chinese language consist of single lines, or of complex assemblages of lines or strokes, numbering from the single one up to fifty-two. The attempt to discover the original principles of representation, according to which these complex characters were composed, has been the source of much perplexity to the learned, and the Chinese scholars themselves seem to have little more than a few unsatisfactory fancies upon the subject.

“The conclusion upon which the investigation seems now to rest is, that such changes have taken place in the mode of tracing the lines, and such modifications of the general shape of the characters, that it has become impossible to do more than catch a few very unsatisfactory intimations of the existence of any original design. This conclusion is deemed erroneous, and other views will be offered by Mr. A. upon the subject. One important fact, however, in relation to their composition was early observed by the Chinese themselves, and advantage taken of it to aid them in arranging their *sign-words*

in dictionaries; namely, that there is a small number of characters, reckoned at 214, of very frequent occurrence, and that either alone, or as a component part of a larger character, some one of these frequent signs occurs in every *sign-word* of the language. Hence they have arranged their *sign-words* under these frequent signs as heads of groups, and denominate these last the *keys* of the language.

“ Mr. Marshman observed that so much as remains of a compound sign-word, after the key is removed, is likewise a substantive character or sign-word of the language, occurring both by itself and in combination with different keys, so as to furnish another and distinct mode of grouping or classifying the characters. This remaining part of the character after removing the *key* was called by Mr. Marshman the *primitive*. The key is then the *modifier*. (It is also badly denominated the *radical*.) Mr. Marshman supposed that the *primitive* represents the meaning of the whole character in a general way, and that the modifier then renders it definite, much in the same way as the primitive or root word of a Latin or Greek compound verb is modified by the several prepositions prefixed to it, and he adduced a moderate amount of examples to sustain this theory. His observance of related meanings extended only to those few obvious ones which appear at a casual glance, and offered no clew to an integral development of the scheme. No successor of Mr. Marshman has therefore had more success than himself in demonstrating his theory, and M. Callery comes forward to throw discredit upon it altogether, by asserting one quite different from it, and, as he evidently thinks, incompatible with it.

“ It has just been shown that the compound sign-words consist each of two parts, one of which is called the *primitive*, and the other the *modifier*. The *modifiers* are not so numerous as the *syllabic words* of the spoken language, while the *primitives* are much more so, being by M. Callery's computation 1040. It has been observed by the Chinese themselves, that, as the general rule, all the *sign-words* which have the same *primitive* are *homophonous*, or, in other words, signify the same *syllabic word*, while those having the same *modifier* have no such established relationship of sound, but generally differ from each other throughout. This fact M. Callery has brought out into a much clearer light, and has made it the basis of his arrangement of the *sign-words* of the language. He advances and contends for the theory, that the *primitive* as previously called, which is usually

by far the most prominent part of the whole *sign-word*, performs no other function than that of indicating the pronunciation, and that whatever reference there is to signification is to be sought in the remaining part previously called the *modifier*. Hence he gives to the *primitive* the name of *phonetic*, and to the *modifier* (or *radical*) that of *classifier*, as he considers it a sign of the class of ideas to which the word relates. This is what he denominates the phonetic system. He rejects entirely the theory of Mr. Marshman, that the primitive gives the general meaning, and the modifier the particular one, and derides the attempt of Mr. Lay to establish a relationship of idea between all the words having the same vocal utterance, or, in other words, between all the numerous meanings of the same syllabic word.

“It will be observed, that the *sign-words* having in them the same *primitive* (phonetic), are not sufficiently numerous to signify all the various meanings of a single syllabic word. Hence there are other *homophonous sign-words* having different *primitives* (phonetics) in their composition, which denote other meanings of the same vocal utterance. Hence, again, there are several *phonetics* (considering them as such), generally as many as five or six, employed to signify the same vocal utterance or syllabic word, and having no other function. This M. Callery supposes to be so, and he accounts for whatever of seeming relation there may be in the meaning of *sign-words* having the same *phonetic* (primitive), on the ground that the *inventer* of this system of writing, having before him several *phonetics*, for the same sound would naturally select a given one of them for those meanings which should happen to be most alike, and so of the others. These several views may be shortly stated thus : —

“Mr. Marshman held that all the *sign-words* which have the same *primitive* (phonetic) must represent ideas which have something in common, and that the *primitive* is the representative of that common element of thought, like the root *pel*, in the words *expel*, *compel*, *repel*, &c. Of this he adduced some illustrations and presumptive evidence, which are disposed of by M. Callery as just stated.

“Mr. Lay went farther, and held that this common element of thought must be not only coextensive with a single *primitive* (phonetic) among the written *sign-words*, but with the spoken *syllabic word* itself, for which, as before stated, there are several *primitives*. This theory, the boldest which has been put forth, and which is not, as M. Callery seems to suppose, identical with that of Mr. Marshman, is not

very clearly stated by Mr. Lay, and is supported by a few illustrations so utterly fanciful as fully to justify M. Callery in deriding them.

“M. Callery denies the existence of this common element of thought among ideas signified either by the same *syllabic word* or by *sign-words* having a common *primitive* (phonetic). He holds that that part of a compound character called the *primitive*, having been originally invented to represent a *syllabic word* in a *given sense*, was then transferred to and combined with other *sign-words*, representing the same *syllabic word* in senses totally different, and for the sole purpose of indicating that the pronunciation is still the same.”

Mr. A. further observed, that several of the terms which he now employed, such as *syllabic word*, *sign-word*, and *tone-word*, were his own; that he employed them in order to render more palpable the differences between these learned writers, as he was able to gather them from their works, than he could do by quoting their own language. It was with extreme diffidence that he ventured to dissent from so ripe and distinguished a scholar as M. Callery. His own studies had led him, however, before he was aware that any such view had been advanced, to the conviction that the theory which he had just now stated, as that of Mr. Lay (and which it must be admitted is but obscurely defined and poorly sustained by Mr. Lay himself), is true. He believes, also, that the observations made by M. Callery (though not his theory), are true likewise, and that the former furnishes the reason of the latter.

In other words, Mr. A. believes, as previously stated to the Academy, that “all the numerous meanings of the same vocal syllable or word in the Chinese language, being in some instances as many as several hundreds, and seeming at first view to have no connection with each other, are in fact legitimately and closely related in *idea*, or that all of these numerous significations constitute a family of ideas, which family is denoted *generically* by the single Chinese syllabic word, and *specifically* in other languages by a *family of words*, which then have corresponding etymological relationships, and *specifically* likewise in the Chinese *written* system, first, by groups of homophonous *sign-words*, having a different *primitive* to each group, and then by the particular *sign-words* within each group having different *modifiers*. Or, differently stated, that a given group of Chinese sign-words have the same *primitive*, not merely because they *sound alike*, but that they both *have the same primitive* and *do sound alike*

for the reason lying still farther back, that they *mean alike*; and further, that this likeness of meaning is not confined to a group of sign-words having the same primitive, but that it can be traced throughout the whole family of *homophonous* sign-words."

"The Chinese written system is not to be considered as an *invention*, as M. Callery seems to do, but as a *growth*, perhaps of several ages, quite similar to the gradual formation of spoken languages in other countries. The law of its growth is to be sought in the spoken language of China which previously existed. It is the greatest of mistakes to suppose the written system to be something quite distinct from and disconnected with the spoken. In order to make out an obvious relation between the numerous and apparently diverse meanings of a Chinese syllabic word, recourse must be had to processes of investigation somewhat new in their kind. The natural relations of ideas to each other must be sought out. Etymology has been too much studied, as the Chinese study anatomy, by mapping out the surface of the body. What we want is that science which shall enable us to trace out a positive relationship between ideas superficially the most remote from each other, as the nerves, and arteries, and veins of the body connect and cause to sympathize parts apparently the least related. These relationships of ideas must be shown to exist metaphysically, and at the same time it must be shown that they are testified to by parallel processes of derivation in various languages, except only the Chinese and a few others, which do not admit of derivation."

Two hundred and ninety-second Meeting.

March 2, 1847. — MONTHLY MEETING.

The PRESIDENT in the chair.

Mr. Andrews presented a dissertation on the Tones of the Siamese Language, by Mr. J. Caswell, American Missionary in Siam, which was referred to the Committee on Publication.

Dr. C. T. Jackson read a paper on the recent discovery, claimed by himself, of the effects of the inhalation of sulphuric ether in producing insensibility to pain.